

REMARKS

The Applicants hereby submit the present Amendment and Request for Reconsideration for the above-referenced patent application, entry of which is earnestly solicited, in response to the Office Action of 29 November 2007.

The present application was originally filed with claims 1-22. Subsequently, a restriction/election requirement was issued with respect to such claims; claims 1-7 and 10 were elected with traverse in response. In the present amendment, the Applicants amend claims 1, 2, and 10 and cancel claim 3, with respect to the elected claims. In addition, the Applicants further amend currently-withdrawn claims 8, 9, 11-15, and 18-22. By amending such withdrawn claims, the Applicants seek to reinstate such claims into the present application for consideration. The Applicants respectfully submit that such withdrawn claims as amended now more closely-align with the subject matter defined in claims 1-7 and 10 as amended, and therefore should be properly considered in connection with the present application. The Applicants respectfully submit that no new matter has been entered by the present amendment; the amendments to the claims and specification are fully supported by the application as originally filed.

In the Office Action mailed on 29 November 2006, the Examiner objected to the Abstract as it should be in narrative form and generally limited within the range of 50 to 150 words. In response, the Applicants amend the Abstract in accordance with the Examiner's suggestions.

In the same Office Action, the Examiner rejected claims of the application based on U.S. Patent No. 6,804,879 to Hsiao et al. and U.S. Patent No. 6,930,034 to Colburn et al. In response, the Applicants respectfully disagree and submit that claims 1-2, 4-7, and 10 as amended (as well as all other claims) are allowable over the prior art of record for at least the following reasons.

For a proper rejection of claims under Sections 102 and 103, the prior art alone or in combination must teach or suggest each and every limitation of the claims. In the present case, the prior art fails to teach or suggest each and every limitation of the claims.

According to the present invention (e.g. claim 1), an improved damascene method for use in forming a magnetic head is described. A hard mask layer is formed over an insulator layer (e.g. a hard-baked resist). A photoresist layer is then formed over the hard mask layer, and an image patterning process is performed with the photoresist layer for producing a patterned photoresist having a write coil pattern. Portions of the hard mask layer are removed by etching in accordance with the patterned photoresist, for producing a patterned hard mask having the write coil pattern. Next, portions of the insulator layer are removed by etching in accordance with the patterned hard mask, for producing a patterned insulator having the write coil pattern. The patterned photoresist is also removed.

Thereafter, the patterned hard mask is removed by etching. The etching utilized to remove the patterned hard mask may be a reactive ion etch (RIE) or the like. After removing the patterned hard mask, an electrically conductive material is electroplated within the patterned insulator having the write coil pattern, for producing a plurality of write coil layers of a write coil of the magnetic head. A planarization process (e.g. a CMP) is then performed over the electrically conductive material to complete the claimed process.

Note that the planarization process is improved by the act of etching to remove the patterned hard mask. It is advantageous to remove the hard mask layer by etching (e.g. RIE) before the CMP step. For one, it provides for run-to-run stability for the CMP since no hard mask layer is involved with the CMP; it is not necessary to change the

slurry of the CMP. In addition, the result of the CMP is made independent from the thickness and the adhesion characteristics of the hard mask material. No undesirable hard mask fragments are created during the CMP. Also, the new etching step reduces overall contamination by cleaning surrounding residues and helps improve the shape of the top portion of the trenches. Finally, the new etching step does not have a significant undesirable impact on time and convenience.

The prior art in combination utilized in the rejections by the Examiner fail to teach or suggest, for example, the step of etching to remove the patterned hard mask as recited in context with other recited limitations of the claims. Further, the prior art fails to provide any adequate suggestion or motivation to modify the prior art to employ any such steps, or any advantages or benefits that would result from any such steps.

As the prior art in combination fails to teach or suggest each and every limitation of the claims, and render the subject matter defined by such claims as obvious, the Applicants respectfully request the Examiner to withdraw the current rejections. Such claims as amended are now allowable over the prior art of record.

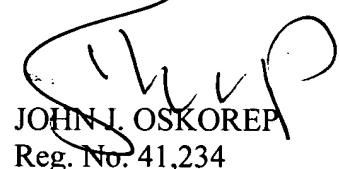
Additional reasons for allowability of other dependent claims, as one ordinarily skilled in the art will readily appreciate, are not further articulated herein, as sufficient reasons for allowability of the independent claims have already been presented above.

As indicated earlier above, the Applicants seek to reinstate currently-withdrawn claims 8, 9, 11-15, and 18-22 as amended for reconsideration into the present application. The Applicants respectfully submit that such withdrawn claims as amended now more closely-align with the currently allowable subject matter defined in pending claims 1-2, 4-7, and 10 as amended, and therefore should now be considered and allowed along with such pending claims.

Thus, the Applicants respectfully submit that all pending claims of the present application, claims 1-2, 4-7 and 10, as well as currently-withdrawn claims 8-9 and 11-12, define subject matter that is novel and non-obvious over the prior art of record. As the pending claims are allowable over the prior art and all other requirements have been met, the present application is now in a condition suitable for allowance.

Thank you. Please feel free to contact the undersigned if it would expedite the prosecution of the present application.

Respectfully submitted,


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